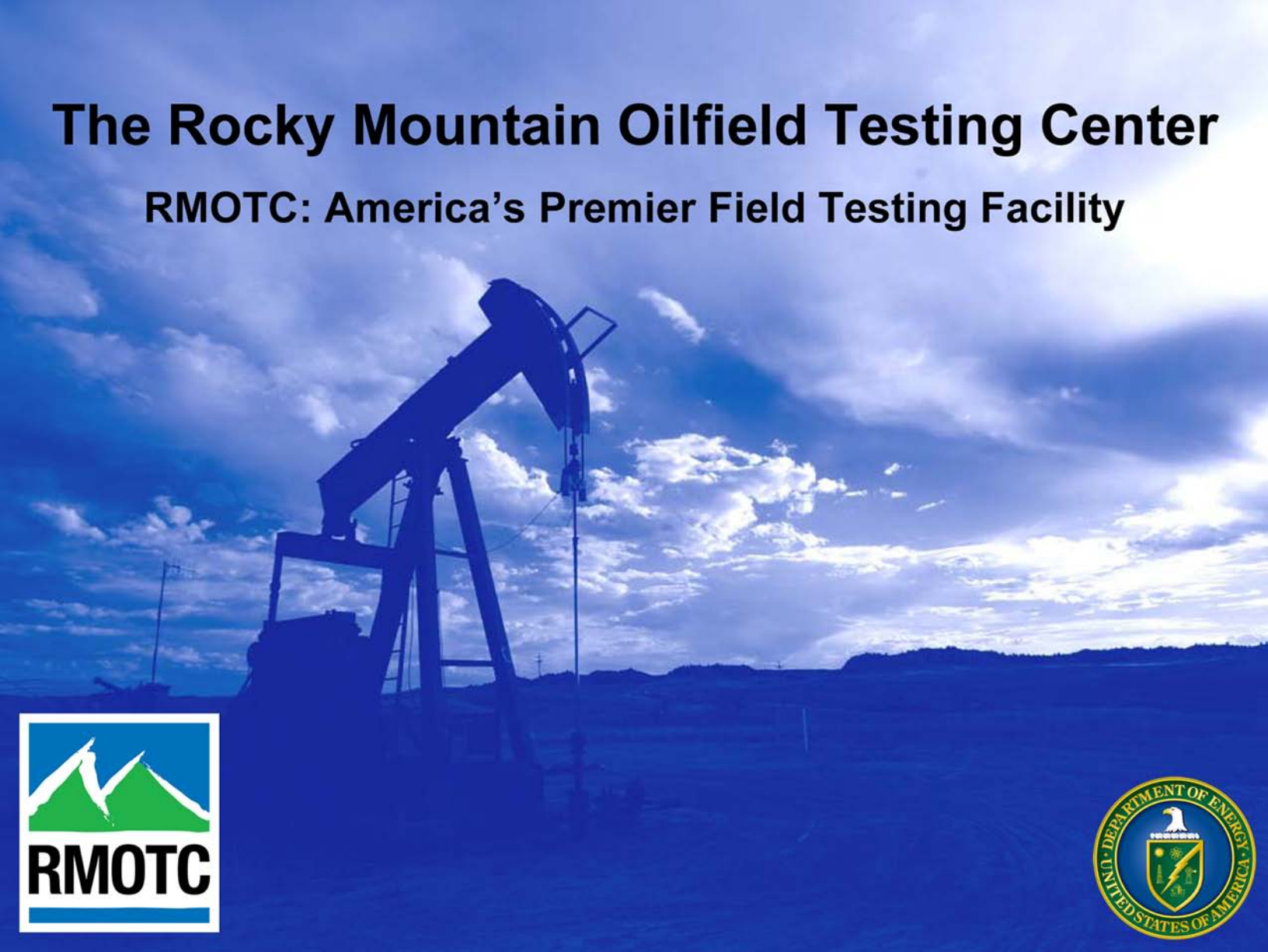
# The Rocky Mountain Oilfield Testing Center

## RMOTC: America's Premier Field Testing Facility



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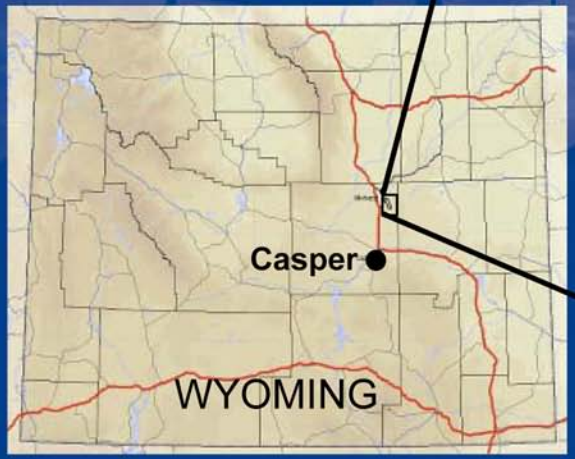
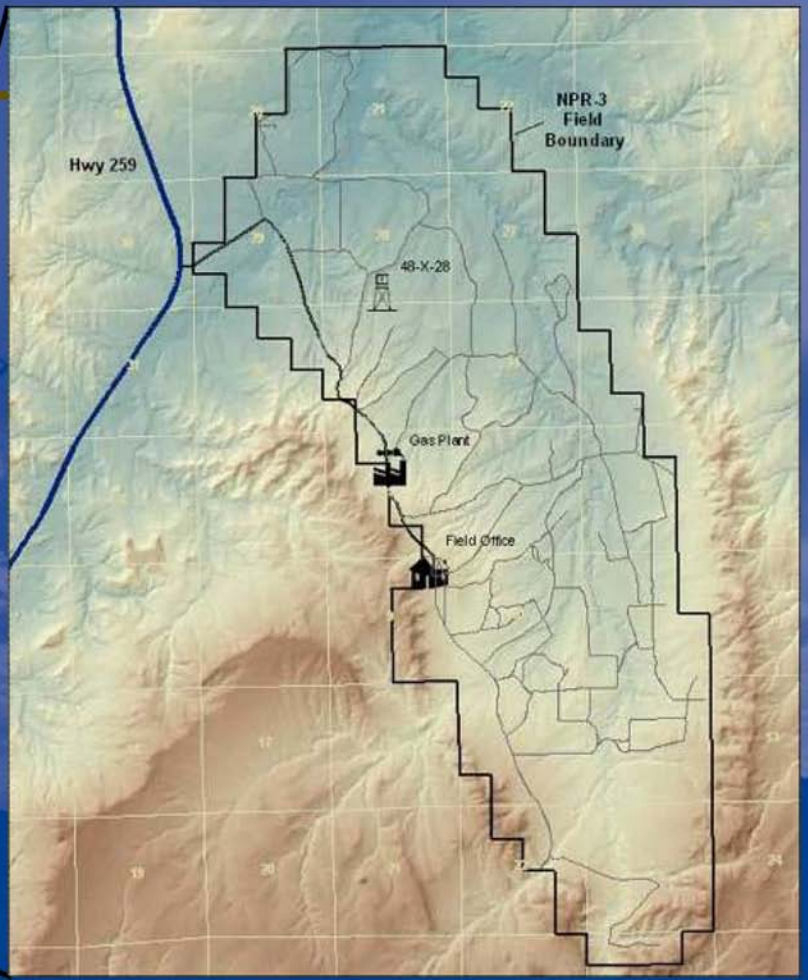
# What is RMOTC?

The Rocky Mountain Oilfield Testing Center (RMOTC), is an operating oil field focusing on environmentally-balanced energy technologies and alternatives, and is the premiere energy testing and demonstration field in the nation.

# Field Location

- RMOTC is located at Teapot Dome Oilfield within the Naval Petroleum Reserve No. 3 (NPR-3)
- Town offices are located in Casper, WY

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# RMOTC Provides

Operations and Testing Facilities include:

- Drilling & Service Rigs
- Administrative Services, Engineers, Scientists, & Support Staff
- Support Equipment
- Bio-Treatment Facilities
- Soil Remediation Facilities
- Field Laboratory
- Gas Processing Facilities
- Production Facilities
- Tanks & Pipelines
- Aquaculture & Hydroponic Greenhouse Facilities

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# Unique Location

- Remote, federally-owned and secure site
- 10,000-acre operating oil field
- Full complement of onsite facilities and equipment
- Approximately 1350 well bores; 600+ active wells
- Nine producing reservoirs
- Depths from 250-7000 ft.
- Real world field testing
- Producing, non-producing, and new well drilling opportunities
- Industry experienced specialists
- Varied terrain & weather conditions

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# RMOTC offers Testing Opportunities in:

- Exploration
- Environmental Technology
- Production Technology
- Drilling Technology
- Renewable Energy
- Energy Assurance

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# Teapot Dome Oil Field History

- Production began in the early 1900's
- By 1927 over 80 wells had been drilled.
- The field was shut down in 1927 and no wells were drilled until the 1950's.
- The field was opened to full production in the mid 1970's and has been producing oil and gas since.

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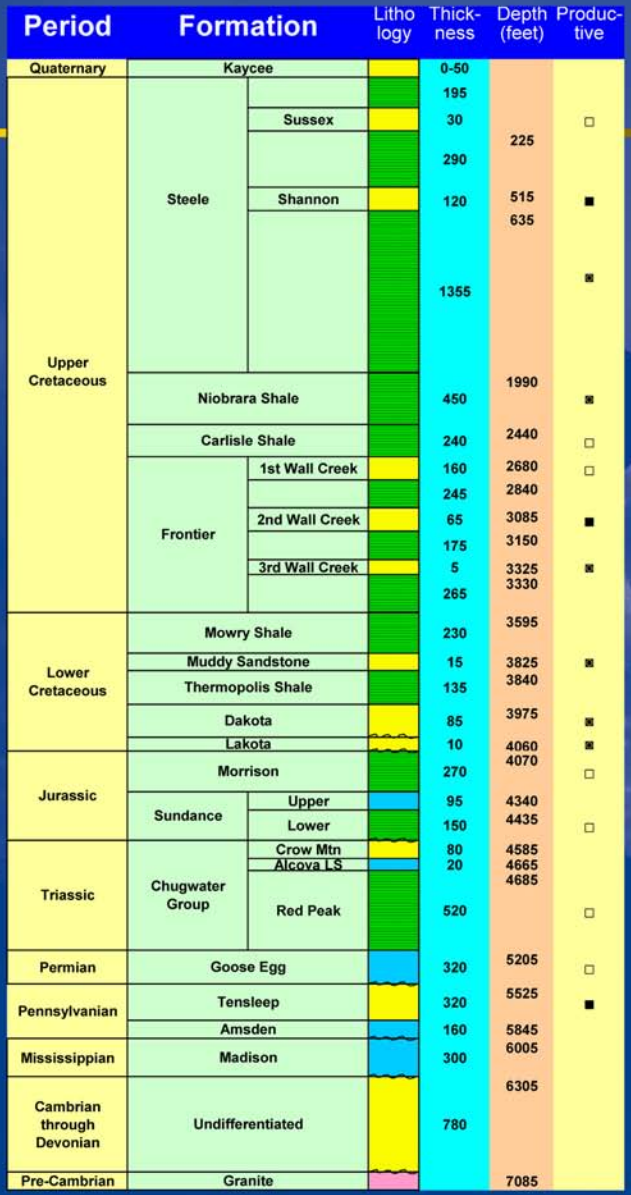


# NPR-3 Reservoir Summary

- Nine oil-bearing intervals
- Four currently producing
  - *Shannon - depth 500'*
  - *Niobrara Shale 2000'*
  - *2nd Wall Creek 3000'*
  - *Tensleep 5500'*
- Granite Basement 7000'
- Range of rock composition & petrophysics
- Clastics and Carbonates

# Reservoir Data

| Formation | Shannon | Shales | 2nd Wall Ck | Tensleep |
|---|---|---|---|---|
| OOIP MMBO | 144 | 25 | 57 | 4 |
| OGIP BCF | 1.4 | 2.2 | 45.1 | .01 |
| Area, acres | 3800 | 8640 | 3590 | 320 |
| Ave Poro. | 18 % | n/a | 15 % | 8 % |
| Ave Perm. | 63 md | n/a | 100 md | 80 md |
| Thickness ft. | 65 | 35 | 30 | 50 |
| Pressure PSI | 25-70 | 25-250 | 25-250 | 2350 |
| Cum. Oil | 11.5 | 4.1 | 10.3 | 1.8 |
| Recovery % | 8 | 16 | 18 | 45 |
| Cum. Gas | .7 | .9 | 45.1* (inj.) | 0 |
| Temp. °F | 65 | 100 | 125 | 190 |
| Oil Gravity | 29-35 | 38-42 | 38 | 32 |

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# RMOTC's Drilling Rig

The Rocky Mountain Oilfield Testing Center has expanded its testing capabilities with the new RMOTC Rig No. 1, built by Crown Energy of Calgary, Alberta, Canada.

- *118 foot high telescoping mast*
- *375,000 pounds*
- *Depths up to 8000 feet*
- *High-pressure capability to 8000 PSI while rotating*
- *900 HP draw-works*
- *Two tandem reduced-emissions engines*

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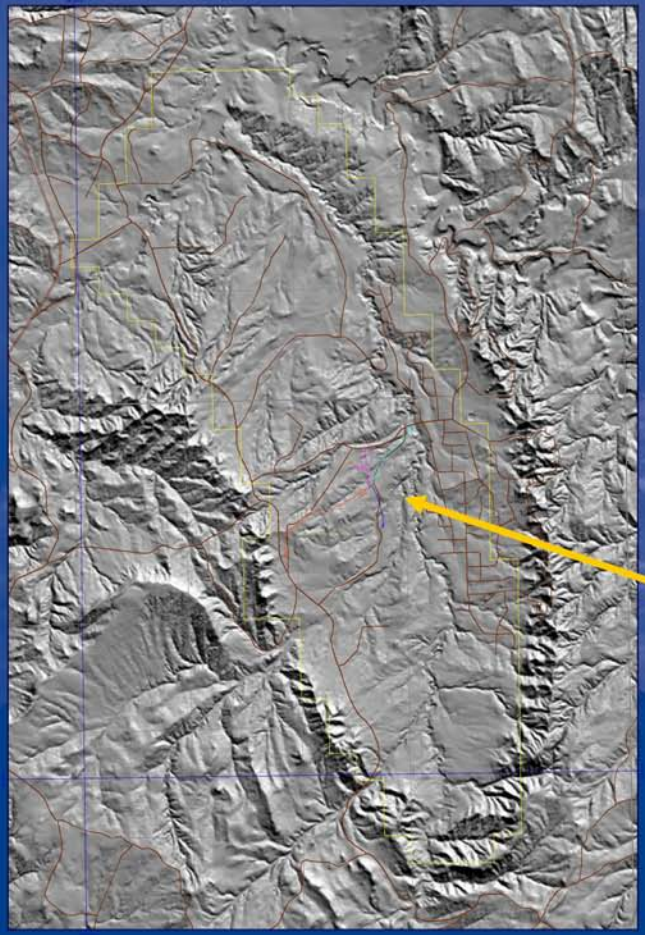
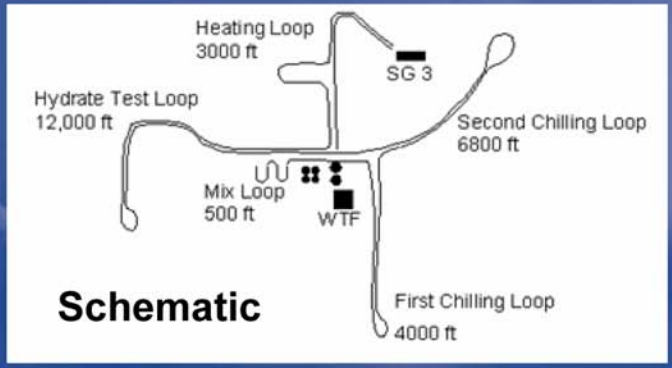
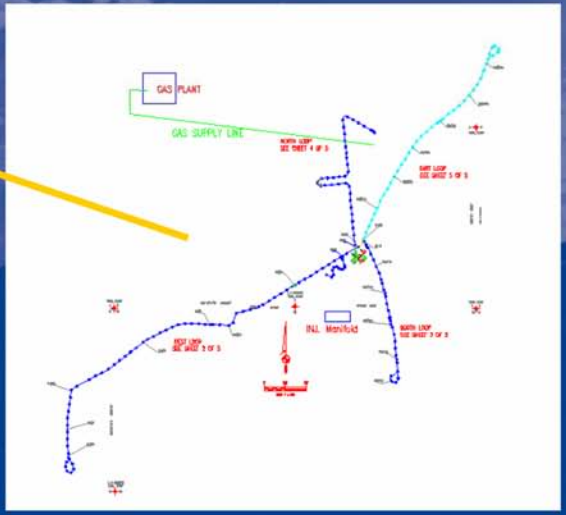
# Flow Assurance Test Loop

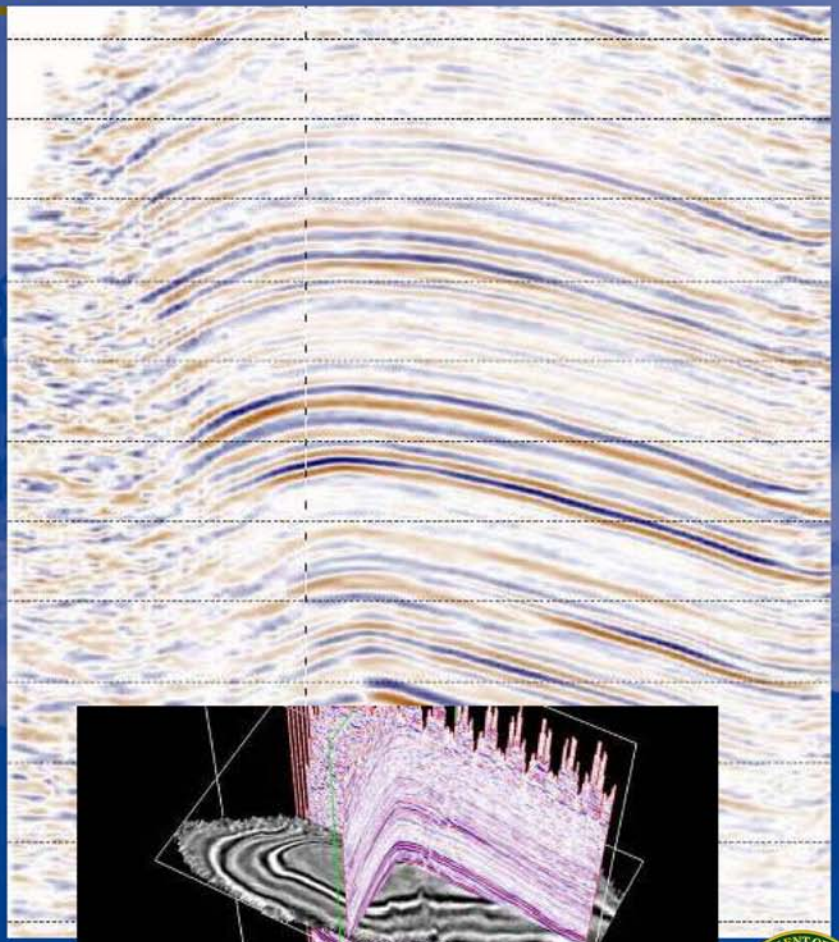


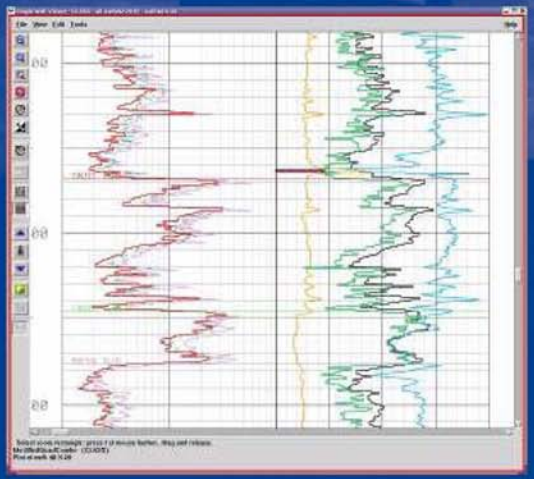



# RMOTC Has Comprehensive Surface and Subsurface Data to Support Test Projects

- 3D & 2D Seismic Data
- Production History
- Drilling & Tubulars
- Well Headers, Formation Tops
- Well Logs and Cores







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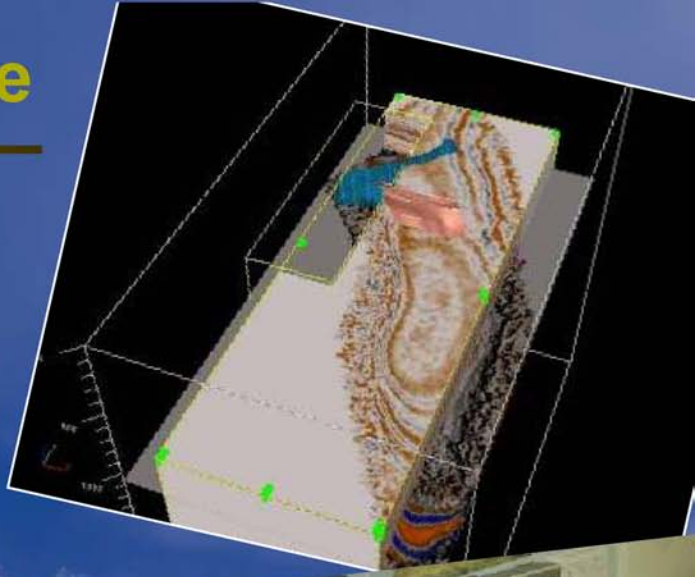
# Workstations and Software

- Comprehensive suite of integrated interpretation tools from Landmark Graphics in G&G, production, drilling, and engineering software
- Upgraded new hardware and IT infrastructure
- IT staff support
- ESRI ArcGIS for GIS capabilities
- Drilling rig instrumented for real-time data capture and access via the internet



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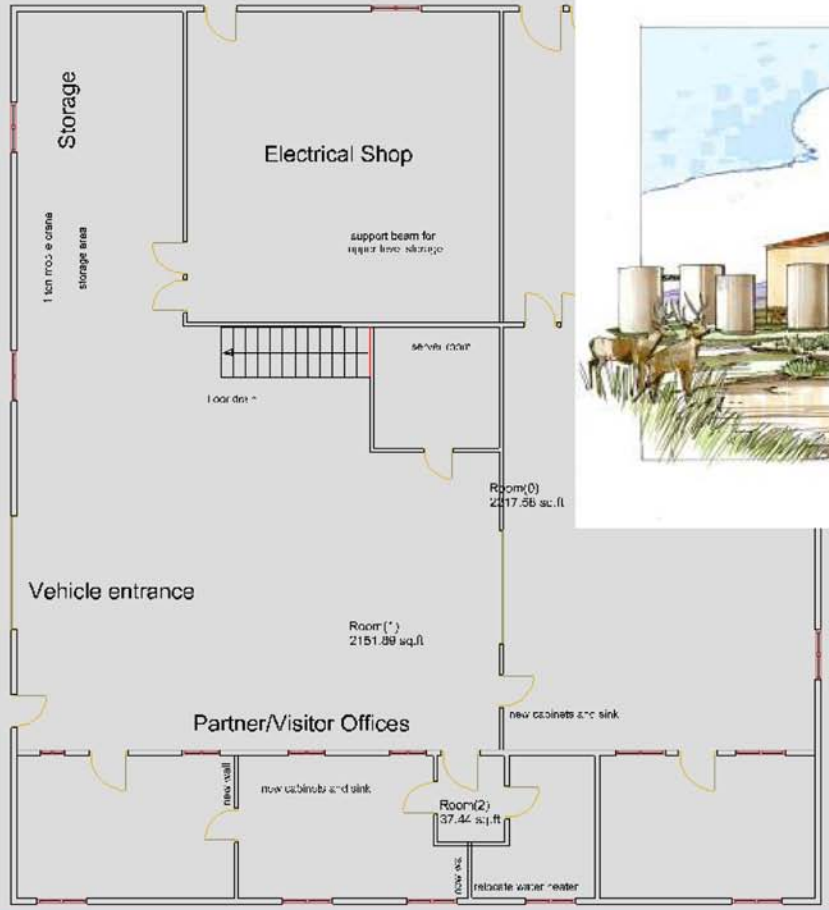
# Customer Operations Center

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